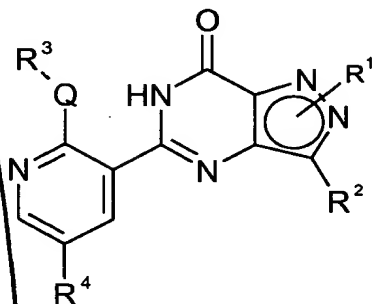


Claims

1. A process for the preparation of a compound of general formula (I):



I

or a pharmaceutically or veterinarily acceptable salt, pro-drug, polymorph and/or solvate thereof, wherein

Q represents O or NR⁵

R¹ represents H, lower alkyl, Het, alkylHet, aryl or alkylaryl (which latter five groups are all optionally substituted and/or terminated with one or more substituents selected from halo, cyano, nitro, lower alkyl, halo(loweralkyl), OR⁶, OC(O)R⁷, C(O)R⁸, C(O)OR⁹, C(O)NR¹⁰R¹¹, NR¹²R¹³ and SO₂NR¹⁴R¹⁵)

R² represents H, halo, cyano, nitro, OR⁶, OC(O)R⁷, C(O)R⁸, C(O)OR⁹, C(O)NR¹⁰R¹¹, NR¹²R¹³, SO₂NR¹⁴R¹⁵, lower alkyl, Het, alkylHet, aryl or alkylaryl (which latter five groups are all optionally substituted and/or terminated with one or more substituents selected from halo, cyano, nitro, lower alkyl, halo(loweralkyl), OR⁶, OC(O)R⁷, C(O)R⁸, C(O)OR⁹, C(O)NR¹⁰R¹¹, NR¹²R¹³ and SO₂NR¹⁴R¹⁵)

R³ represents H, lower alkyl, alkylHet or alkylaryl (which latter three groups are all optionally substituted and/or terminated with one or more substituents selected from halo, cyano, nitro, lower alkyl, halo(loweralkyl), OR⁶, OC(O)R⁷, C(O)R⁸, C(O)OR⁹, C(O)NR¹⁰R¹¹, NR¹²R¹³ and SO₂NR¹⁴R¹⁵)

R⁴ represents H, halo, cyano, nitro, halo(loweralkyl), OR⁶, OC(O)R⁷, C(O)R⁸, C(O)OR⁹, C(O)NR¹⁰R¹¹, NR¹²R¹³, NR¹⁶Y(O)R¹⁷, N[Y(O)R¹⁷]₂, SOR¹⁸,

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5 SO_2R^{19} , $\text{C}(\text{O})\text{AZ}$, lower alkyl, lower alkenyl, lower alkynyl, Het, alkylHet, aryl, alkylaryl (which latter seven groups are all optionally substituted and/or terminated with one or more substituents selected from halo, cyano, nitro, lower alkyl, halo(loweralkyl), OR^6 , $\text{OC}(\text{O})\text{R}^7$, $\text{C}(\text{O})\text{R}^8$, $\text{C}(\text{O})\text{OR}^9$, $\text{C}(\text{O})\text{NR}^{10}\text{R}^{11}$, $\text{NR}^{12}\text{R}^{13}$ and $\text{SO}_2\text{NR}^{14}\text{R}^{15}$)

Y represents C or S(O)

A represents lower alkylene

10 Z represents OR^6 , halo, Het or aryl (which latter two groups are both optionally substituted with one or more substituents selected from halo, cyano, nitro, lower alkyl, halo(loweralkyl), OR^6 , $\text{OC}(\text{O})\text{R}^7$, $\text{C}(\text{O})\text{R}^8$, $\text{C}(\text{O})\text{OR}^9$, $\text{C}(\text{O})\text{NR}^{10}\text{R}^{11}$, $\text{NR}^{12}\text{R}^{13}$ and $\text{SO}_2\text{NR}^{14}\text{R}^{15}$)

15 R^{10} and R^{11} independently represent H or lower alkyl (which latter group is optionally substituted and/or terminated with one or more substituents selected from halo, cyano, nitro, lower alkyl, halo(loweralkyl), OR^6 , $\text{OC}(\text{O})\text{R}^7$, $\text{C}(\text{O})\text{R}^8$, $\text{C}(\text{O})\text{OR}^9$, $\text{C}(\text{O})\text{NR}^{10a}\text{R}^{11a}$, $\text{NR}^{12}\text{R}^{13}$, $\text{SO}_2\text{NR}^{14}\text{R}^{15}$ and $\text{NR}^{20}\text{S}(\text{O})_2\text{R}^{21}$ or Het or aryl optionally substituted with one or more of said latter thirteen groups) or one of R^{10} and R^{11} may be lower alkoxy, amino or Het, which latter two groups are both optionally substituted with lower alkyl

20 R^{10a} and R^{11a} independently represent R^{10} and R^{11} as defined above, except that they do not represent groups that include lower alkyl, Het or aryl, when these three groups are substituted and/or terminated (as appropriate) by one or more substituents that include one or more $\text{C}(\text{O})\text{NR}^{10a}\text{R}^{11a}$ and/or $\text{NR}^{12}\text{R}^{13}$ groups

25 R^{12} and R^{13} independently represent H or lower alkyl (which latter group is optionally substituted and/or terminated with one or more substituents selected from OR^6 , $\text{C}(\text{O})\text{OR}^9$, $\text{C}(\text{O})\text{NR}^{22}\text{R}^{23}$ and $\text{NR}^{24}\text{R}^{25}$), one of R^{12} or R^{13} may be $\text{C}(\text{O})$ -lower alkyl or $\text{C}(\text{O})\text{Het}$ (in which Het is optionally substituted with lower alkyl), or R^{12} and R^{13} together represent C_{3-7} alkylene (which alkylene group is optionally unsaturated, optionally substituted by one or more lower alkyl groups and/or optionally interrupted by O or NR^{26})

30 R^{14} and R^{15} independently represent H or lower alkyl or R^{14} and R^{15} , together with the nitrogen atom to which they are bound, form a heterocyclic ring

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R^{16} and R^{17} independently represent H or lower alkyl (which latter group is optionally substituted and/or terminated with one or more substituents selected from OR^6 , $C(O)OR^9$, $C(O)NR^{22}R^{23}$ and $NR^{24}R^{25}$) or one of R^{16} and R^{17} may be Het or aryl, which latter two groups are both optionally substituted with lower alkyl

R^5 , R^6 , R^7 , R^8 , R^9 , R^{18} , R^{19} , R^{20} , R^{22} , R^{23} , R^{24} and R^{25} independently represent H or lower alkyl

R^{18} and R^{19} independently represent lower alkyl

R^{21} represents lower alkyl or aryl

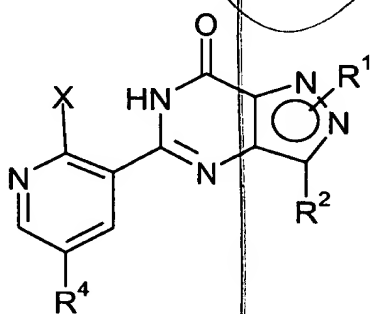
R^{26} represents H, lower alkyl, aryl, $C(O)R^{27}$ or $S(O)_2R^{28}$

R^{27} represents H, lower alkyl or aryl

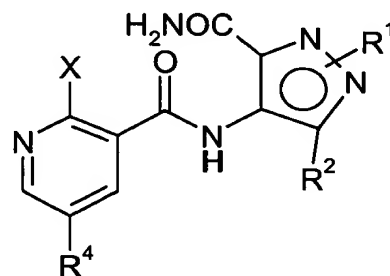
R^{28} represents lower alkyl or aryl

Het represents an optionally substituted four- to twelve-membered heterocyclic group, which group contains one or more heteroatoms selected from nitrogen, oxygen, sulphur and mixtures thereof

said process comprising reacting a compound of formula (II), (III), (IV) or (V) in the presence of OR^3 and a hydroxide-trapping agent or, alternatively, in the case of compounds of formulae (IV) or (V) reacting in the presence of an auxiliary base and a hydroxide trapping agent (i.e. OR^3 is substituted by the auxiliary base)

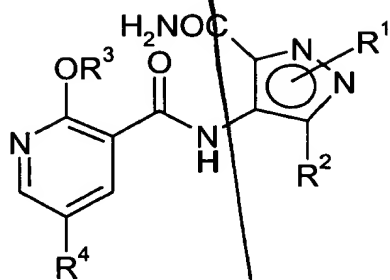


(II)

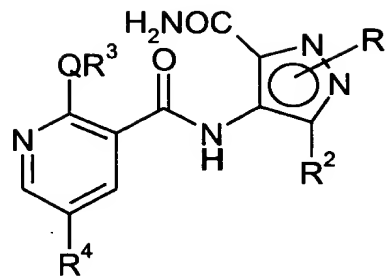


(III)

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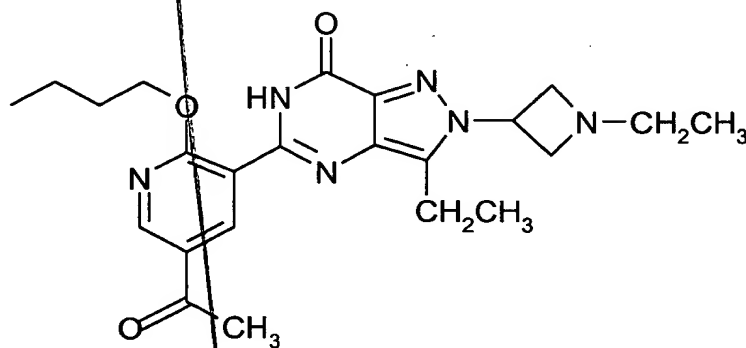
(IV)



(V)

wherein X is a leaving group and Q and R¹ to R⁴ are as defined above.

2. A process for the preparation of a compound of formula (IA):

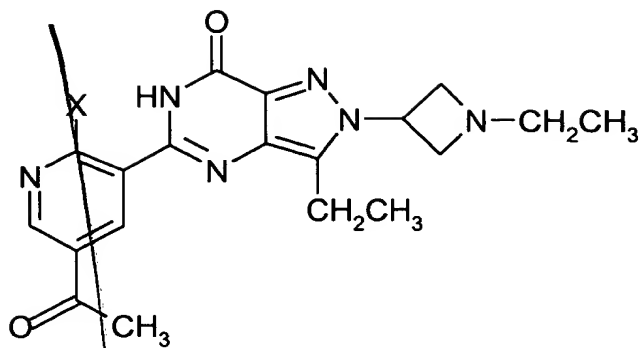


(IA)

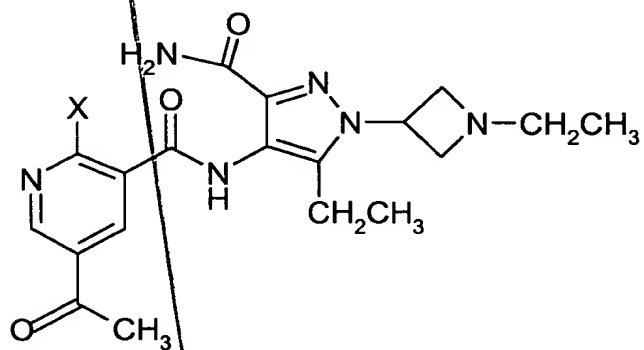
said process comprising reacting a compound of formula (IIA), (IIIA) or (IVA) respectively

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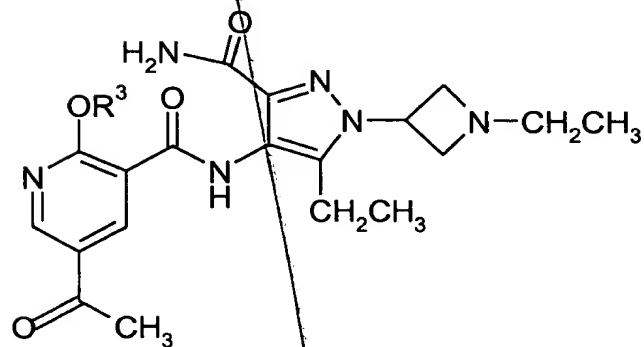
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(IIA)



(IIIA)



(IVA)

in the presence of OR^3 and a hydroxide trapping agent, or alternatively in the case of compounds of formula (IVA) reacting in the presence of a hydroxide trapping agent and an auxiliary base, wherein OR^3 in the case of formation of compound (IA) and (IVA) is $\text{CH}_3(\text{CH}_2)_3\text{O}-$ and wherein X in formulae (IIA) and (IIIA) is a leaving group.

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Add
a¹

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